

RESEARCH ARTICLE

Factors Predicting Postponement of a Final Dissertation: Replication and extension¹

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The purpose of this study is to investigate the factors predicting postponement of final dissertation completion. This phenomenon affects a substantial number of last year's graduate students and has been largely neglected throughout higher education literature. We aimed to confirm the results from the only study that investigated the factors related to this phenomenon and overcome some limitations of this study concerning the investigation of the processes involved in FD postponement. A questionnaire assessing individual characteristics, social support, motivational and engagement variables was administered to 268 students a few months before the FD deadline. Results indicated that behavioral engagement, age and role conflict have an independent and significant impact on whether or not the final dissertation is completed on time. In addition, path analyses revealed that role conflict was associated with self-efficacy beliefs which, in turn, predicted greater behavioral engagement. Further, behavioral engagement was the most important contributor of FD postponement.

The final dissertation (FD) is the most substantial part of a master's degree. It often accounts for a large portion of the overall final year assessment, and is considered as the culmination of a graduate's career. Students are expected to exhibit a high level of critical thinking and independent work and become producers of knowledge rather than consumers. A supervisor monitors them during its completion. As Ylijoki (2001, p22) noted, the FD "constitutes a bridge from the world of study to the world of science". While most university students complete it on time, others are not able to cope and consequently postpone it until after the last deadline

imposed by the institution (in august). In US and UK, it is estimated that between 15% and 30% of students find themselves in this situation (Dunkerley & Weeks, 1994; Garcia, Malott, & Brethower, 1988; Rudd, 1985). In Belgium, one study integrating all the last-year students ($N = 2907$) of a French-speaking university showed that the postponement rate reached 18% (Dupont, Meert, Galand & Nils, 2011). This varied among the Faculties, with the highest rates (between 40 and 50%) found in graduate programs within the social science sector. The consequences of this postponement involve financial costs for students (they have to enroll for another year) and society (Belgium spending a few thousand of euro per year for each student) temporal costs for the institution (time spent on the supervision process), and potential psychological costs for students. For all these reasons, it is important from

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the institution's perspective to try to help students to graduate and limit the length of their studies (Ylijoki, 2001).

So far, research on success in higher education mainly focused on the determinants of the first-year student's undergraduate achievement. Master's students, specifically final year university students, have received little attention. The few studies that investigated the processes involved in FD completion are mainly qualitative with few participants and did not focus specifically on predictors of FD postponement (Anderson, Day & McLaughlin, 2008; Ylijoki, 2001). However, more recently, a study by Dupont, Meert, Galand and Nils (2012) examined, from an integrative and quantitative approach, the factors predicting FD postponement. This study showed that behavioral engagement, peer support, role conflict and age had an independent and significant effect on whether or not the final dissertation is completed on time. In addition, behavioral engagement appeared to be a mediator of the relationship between self-efficacy beliefs and the final dissertation completion.

Given the substantial number of students who encounter difficulties in writing up their FD and completing it on time, the purpose of this study was to confirm the initial quantitative results from the study by Dupont and colleagues (2012), and overcome some limitations of this study. In particular, the focus of the investigation was extended to the processes involved in FD postponement. More specifically, this initial study was explorative and analyzed the influence of *a priori* relevant factors on FD postponement, while the reciprocal inter-relations among these factors were neglected.

In this study, we examined a broad range of factors from different theoretical perspectives (individual characteristics, social support, motivational beliefs and student engagement), as in the Dupont and colleagues' study (2012), so as to account for the diversity in final year students' needs and characteristics. Predictor variables were

selected based on their significant effect in previous studies which focused on achievement at university (Dupont et al., 2012; Poropat, 2009; Richardson, Abraham, & Bond, 2012; Robbins et al., 2004). All these predictors were analyzed together in order to control for the potential effect of other independent variables. In a second step, variables proving significant in the first step were included in a conceptual model in order to investigate some processes that lead to FD completion.

In the following sections, all blocks of variables (individual characteristics, social support, motivational beliefs and engagement) will be presented. Then, the results from the Dupont and colleague's (2012) study will be detailed and, finally, a conceptual model connecting these blocks of variables will be proposed as a basis for the path analyses.

Individual characteristics

In this study, individual characteristics include the student's socioeconomic status, past performance and personality traits, a set of factors that are supposed to be stable and distal with regard to FD completion. Many studies have shown that gender, age and socioeconomic factors were important predictors of achievement at university (Richardson et al., 2012; Robbins et al., 2004). Another important variable is past academic performance, which has been demonstrated to be an important predictor of first-year university achievement (e.g. Díaz, Glass, Arnkoff, & Tanofsky-Kraff, 2001). Students performing better during the previous year were expected to complete their FD on time.

Two main personality traits were examined in this study. First, perfectionism is a personality style characterized by striving for flawlessness and setting excessively high standards for performance, accompanied by a tendency for criticizing one's own behavior (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990). In the existing literature, two major types of perfectionism have been differentiated (Stoeber & Otto, 2006): Adaptive perfectionism, which

refers to the setting of high personal standards, and maladaptive perfectionism, which refers to high levels of self-criticism and doubt about actions. The former has positive consequences such as higher motivation, less depression and higher grades (Bieling, Israeli, & Antony, 2004; Rice & Slaney, 2002) and the latter has negative consequences such as lower self-esteem, higher depression, a feeling of academic incompetence and lower grades (Dunkley, Blankstein, Masheb, & Grilo, 2006). Consequently, FD postponement was expected to be more common among maladaptive perfectionist students.

Second, the impact of students' affects on FD completion was examined. Two types of affects are generally defined in existing literature: positive affects, a tendency to experience positive emotions and engage in life in a positive manner, and negative affects, a tendency to experience negative emotions and engage in life in a negative manner (Tellegen, 1985; Watson & Clark, 1992). The former has been shown to enhance motivation and promote creative ways of thinking (Fielder, 2001) and the latter has been shown to impair performance of complex and difficult tasks that demand cognitive resources and have a negative impact on students' achievements (Meece, Wigfield, & Eccles, 1990). As the FD is a difficult task, which demands continual cognitive efforts, negative affects were expected to be associated with FD postponement.

Social Support

The experience of completing the FD involves multiple interactions with different social partners. Numerous studies have indicated the support that students get from their social environment serves as a potential buffer for stress in academic tasks (Arthur, 1998; Hays & Oxley, 1986) and is crucial to performance and achievement at university (Fass & Tubman, 2002; Robbins et al., 2004). Different sources of support were examined in this study: family, peers, supervisors and institutions. Role conflict was also assessed as a way of measuring

cohesion or tension between spheres of socialization (Westman, 2001).

A central facet of students' experience of writing up the FD is their relationship with the supervisor. Student perception of supervisor/teacher support (i.e. available, involved, giving positive feedback and helping the student to structure his or her work) has been shown to influence achievement among first year university students (Feldman, 2007) and to prevent doctoral student from dropping out (Bair & Haworth, 2005).

Peers and family are also important factors in the social environment. They have been found to be associated with achievement among first-year university students (Fass & Tubman, 2002). In addition, students who have supportive social relationships with peers and family develop more adaptive motivational beliefs (Wentzel, 1998) and engage more in learning activities (Furrer & Skinner, 2003). These factors were expected to predict FD completion on time.

When writing the FD, students are also supported by the university, especially when seminars dedicated to the development of skills required for FD completion are organized. Studies have shown that institutional interventions oriented on the mastering of specific academic skills have an important effect on achievement and persistence among first year university students (Robbins, Oh, Le, & Button, 2009). In this study, students' perceptions of the amount of training and guidance provided by their institution in preparation for their FD (e.g. whether they have all the instructions and have mastered the methodological tools) and its influence on FD completion were investigated.

Finally, writing up the FD may involve conflicts with other aspects of students' daily life (e.g. a student engaged in a student association or experiencing family problems has some obligations that might be incompatible with the work required by the FD). Initially, these conflicts were analyzed by organizational researchers. This research focused on family-work interaction (Westman, 2001) and the impact of stressful

events at work on family and vice versa. There are multiple consequences, ranging from absenteeism (Hepburn & Barling, 1996) to resignation (Aryee & Tan, 1992). Role conflict was expected to predict FD postponement.

Motivational beliefs

Motivation essentially concerns what moves people to act and why people think and do what they do (Pintrich, 2003; Weiner, 1992). When faced with a learning task, students develop motivational beliefs, beliefs about their competence and about the reasons why they complete the task. Numerous studies have shown the importance of adaptive beliefs to students' investment in different academic tasks and their performance (for reviews, see Robbins et al., 2004; Schunk, Pintrich, & Meece, 2008). Among these beliefs, self-efficacy has been well documented, and is proposed by Bandura (1997). The author defines self-efficacy as students' confidence in their ability to organize and execute a given course of action in order to accomplish a task. Studies have shown self-efficacy is an important predictor of positive emotions, use of deep-processing strategies, self-regulation strategies and performance (Bandura, 1991; Robbins et al., 2004; Pintrich & DeGroot, 1990; Schunk et al., 2008). As a result, students with a high sense of self-efficacy were expected to complete their FD on time.

Intrinsic and extrinsic motivation are also relevant motivational concepts in the study of factors predicting FD postponement (Ryan & Deci, 2008). When students are intrinsically motivated, they carry out learning activities for their own sake, their own personal interest and enjoyment in the task itself. Extrinsically motivated students rely on external parameters like rewards, social approval or coercion (Ryan & Deci, 2008). Studies have shown intrinsically motivated students have more interest in a learning task, feel more positive emotions while working on it and perform better academically than externally motivated students (Komarraju, Karau, & Schmeck, 2009; Lane et

al., 2004). We therefore presume intrinsically motivated students who consider their FD to be interesting, appealing and satisfying will not postpone it, while those who work on their FD because of external reasons (such as parental expectations) will be less motivated and, consequently, more likely to postpone it.

Students' perception of the task was also investigated (Eccles & Wigfield, 2002). Eccles and colleagues defined task value as the reason why students engage in a task (Eccles, Wigfield, Harold, & Blumenfeld, 1993). This has four components: attainment, which refers to the personal importance of doing well on the task, intrinsic value, which defines the enjoyment students get from performing the activity, utility value, which corresponds to how well the task relates to future goals, and cost, which refers to whether the task interferes with other possible activities. A perceived high task value (i.e. a task which is perceived to be important, interesting and useful) has been found to be related to persistence, student engagement and achievement (Eccles & Wang, 2012; Eccles, 2005). Therefore, students with a positive perception of the value of the FD were expected to complete it on time.

Emotional, cognitive and behavioral engagement

Engagement essentially concerns students' involvement in the FD, in terms of effort, attention and emotions. It is the visible manifestation of motivational beliefs and is characterized by a constructive, enthusiastic, determined, attentive and focused participation in learning activities (Connell & Wellborn, 1990). According to recent literature reviews (Appleton, Christenson, & Furlong, 2008; Fredricks, Blumenfeld, & Paris, 2004), three components of engagement can be differentiated: emotional, cognitive and behavioral engagement.

Emotional engagement encompasses students' emotional reactions, such as enthusiasm, irritation, fear, anger, happiness and anxiety, when facing a learning task (Pekrun, 2006; Skinner & Belmont, 1993). Studies

have shown that students' emotional reactions predicted their learning strategies and academic achievement (Pekrun, Goetz, Titz & Perry, 2002).

Cognitive engagement encapsulates students' use of both self-regulation and deep-processing strategies (rather than surface-processing strategies) (Fredricks et al., 2004). Self-regulation strategies are defined as self-generated thoughts, feeling and behaviors, which are strategically oriented towards the attainment of personal goals (Schunk, 2008). Self-regulating students try to plan and monitor their cognition and manage environmental or internal constraints during learning (Pintrich & De Groot 1990; Zimmerman 2002). Studies have shown these students perform better in academic tasks (Robbins et al., 2004; Shell & Husman, 2008). Students using deep-processing strategies try to challenge the ideas and concepts put forward by authors they encounter and make connections between these ideas (Marton & Säljö, 1997; Miller, Greene, Montalvo, Ravindran, & Nichols, 1996). These strategies have been shown to be associated with performance among first-year university students (De Clercq et al., 2012).

Behavioral engagement refers to students' participation in the task (i.e. how involved they are in the task). It includes behaviors such as effort, persistence and attention (Birch & Ladd, 1997; Finn, Pannozzo, & Voelkl, 1995) and is the most proximal predictor of achievement and performance among first year university students (De Clercq et al., 2012; Richardson et al., 2012). These engagement variables were expected to be proximal predictors of timely FD completion.

The Dupont and colleagues' study (2012)

This study was conducted in a French speaking university in Belgium. The 341 participants belonged to four graduate programs: psychology, physiotherapy, economy, and speech therapy. The authors analyzed the influence of variables from the above mentioned four categories on the

FD postponement. Their results showed that behavioral engagement, peer support, role conflict and age had an independent and significant effect on whether or not the final dissertation is completed on time. These variables explained 33% of the FD postponement variance. In addition, behavioral engagement appeared to be the mediator of the relationship between self-efficacy beliefs and the final dissertation completion. In comparison with this initial study, we include four new predictors (perfectionism, self-criticism and negative and positive affects), and participants from a new faculty: humanities. In addition we investigate more deeply the processes that lead to FD postponement by testing a conceptual model of the relationships between the categories of variables and FD postponement.

Exploratory model

As a framework for the analysis, a predictive model of FD postponement including the blocks of variables mentioned above (see **Figure 1**) was developed. This is an adaptation of the model proposed by Connell and Wellborn (1990), which has been extended by Skinner and colleagues (e.g. Furrer & Skinner, 2003; Skinner, Furrer, Marchand, & Kindermann, 2008; Skinner & Pitzer, 2012). This model explains the connections between social context, motivational beliefs, student engagement and achievement outcomes (Connell & Wellborn, 1990; Skinner et al., 2008); it applies to any educational context which involves learning activities with social actors (Connell & Wellborn, 1990). Specifically, the authors propose that a supportive social context shapes adaptive individuals' motivational beliefs which, in turn, influence their engagement in learning activities. Finally, engagement variables are considered as the most proximal predictors of different outcomes such as academic achievement, learning, and well-being. These authors also proposed that motivational beliefs are mediators of the relationships between social context and engagement variables (Lam et al., 2012; Skinner et al.,

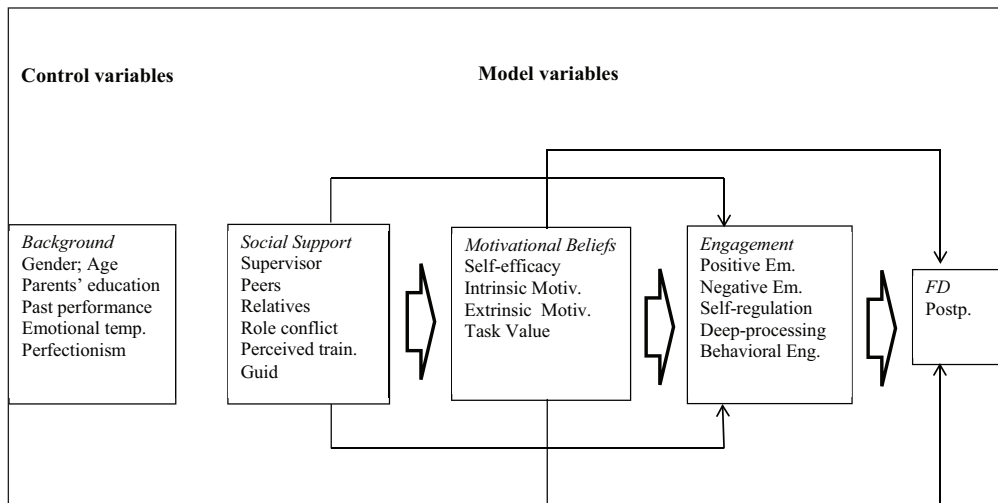


Figure 1: Adapted model of the FD completion

2008). These general associations have received empirical support in many studies (e.g. Connell, Spencer, & Aber, 1994; Connell & Wellborn, 1990; Furrer & Skinner, 2003; Lam et al., 2012; Skinner & Belmont, 1993; Skinner et al., 2008; Skinner & Pitzer, 2012). Moreover, as regards individual characteristic variables, Connell and colleagues (1994) consider that age, gender, family economic risk or personality traits also affect academic outcomes. However, these variables are considered in their model as control ones; their purpose is to look at how relationships between social context, motivational beliefs and student engagement affect academic outcomes, over and above differences attributable to these individual characteristics.

In this line, our model posits that FD postponement is directly predicted by engagement variables. As mentioned above, these associations have received empirical support. Furthermore, motivational beliefs are considered to be the most proximal predictors of engagement variables, since they lead students to in the FD. Engagement variables are also considered as mediators of the relationship between motivational beliefs and FD postponement. These assumptions have been confirmed in several studies at the secondary and tertiary education (e.g. Dupont et al., 2012; Skinner

& Belmont, 1993; Skinner et al., 2008). The model also specifies that social support variables shape students' motivational beliefs, in line with previous studies (Connell et al., 1994; Furrer & Skinner, 2003; Skinner et al., 2008). Individual characteristic variables are also considered to impact FD postponement but were integrated as control variables in the present model. Finally, the model specifies both direct and indirect effects of social support variables on student engagement ones and FD postponement (Furrer & Skinner, 2003; Skinner et al., 2008). This means that the motivational belief block of variables is not expected to fully mediate these relationships.

Method

Participants and procedure

268 participants (69% female), in the final year of their studies, with an average age of 24.5 ($SD = 5.09$; minimum = 21, maximum = 64) responded positively to our invitation to take part in the study. The participants were following three graduate programs in a Belgian university: social sciences ($N = 154$), humanities ($N = 91$) and economics ($N = 23$). These faculties were selected because they shared similar postponement rates (between 16 and 20%; Dupont et al., 2011). In spring 2011, all the participants completed a survey

during normal lectures. Participation was voluntary and while students agreed to provide their names when completing the questionnaire, confidentiality was guaranteed. In autumn 2012, the three departments were asked for a list of the students who had completed the FD on time.

Measures

The questionnaire was mainly constructed on the basis of various existing scales, which were adapted to the specifics of the FD and used in the initial study by Dupont and colleagues (2012). French versions of most of these scales have been used in previous studies, showing adequate reliability and validity (Galand, Raucent, & Frenay, 2010; Galand & Frenay, 2005; Dupont et al., 2012). Unless otherwise noted, the items were scored on a five-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Individual characteristics

Parents' education. Participants were asked about their mother's and father's highest educational level (from 1 = 'primary school' to 5 = 'university'). These were combined to form an indicator of educational background.

Past performance. Participants were asked to indicate their grade point average during the previous university year.

Perfectionism. Participants reported on their tendency for perfectionist personal standards. Six items ($\alpha = .71$) from the Striving for Perfection scale (Stoeber & Rambow, 2007) measured individual differences in perfectionism (e.g., "I strive to be as perfect as possible").

Self-criticism. Participants reported on their critical self-evaluations of their performance. Four items ($\alpha = .78$) from the self-criticism subscale of the revised Attitudes Toward Self scale (Carver, La Voie, Kuhl, & Ganellen, 1988) measured students' self-criticism (e.g., "I get angry with myself if my efforts don't lead to the results I wanted").

Positive and negative affects. Participants reported on the emotions they usually feel in their daily life. Five

items ($\alpha = .76$) from the version of The Differential Emotions Scale (DES; Izard, Dougherty, Bloxom, & Kotsch, 1974) modified by McHugo et al. (1982) and validated in French by Philippot (1993) measured positive emotions (each item consisted of groups of three emotional adjectives; e.g. "Interested, concentrated, alert") and five items ($\alpha = .70$) from the same scale measured negative emotions (e.g. "Angry, irritated, mad"). An exploratory factorial analysis confirmed the *a priori* classification of these items into two scales.

Social support

Supervisor support. Participants reported on the support they experienced from their supervisor. Eight items ($\alpha = .89$), adapted from Galand & Philippot (2005) measured perceived supervisor support (including involvement, provision of resources, structure, choice), for example: "My supervisor takes into account my ideas", "It is easy to contact my supervisor", "My supervisor helps me to structure my FD".

Peer and family support. Participants reported on the support they received from their peers and family. The items were adapted from Cabrera, Castaneda, Nora, & Hengstler (1992) and Galand and colleagues (2010). Three items ($\alpha = .79$) covered participants' perception of the help and support they received from other students in their program, for example: "I know I can rely on some students to help me in the completion of the FD". Three more items ($\alpha = .81$) assessed participants' perceptions of the help and support they received from their family, for example: "I know I can rely on my family to help me in the completion of the FD".

Perceived training and guidance. Participants reported on their perception of the training and guidance they received from the university. This scale included six items ($\alpha = .78$) from Dupont and colleagues (2012). For example: "University has prepared me for completing my FD"; "University has provided me the required skills for completing my FD".

Role conflict. Participants reported on the possible conflict they experienced between their role as a student completing a FD and other roles and obligations related to their daily life. Five items ($\alpha = .78$) were used to measure role conflict based on Westman's (2001) definition, for example: "This year, it is hard to combine my life as a student with other aspects of my life"; "This year, the completion of my FD prevent me from spending time with my relatives".

Motivational beliefs

Self-efficacy. Participants were asked about their confidence in their ability to succeed in the various tasks required to complete the FD on time. Five items ($\alpha = .79$) were adapted from Galand and Philippot (2002). For example: "I feel I can structure my FD in different stages" and "I feel sure I can write my FD".

Intrinsic and extrinsic motivation. Participants were also asked about their reasons for undertaking a FD. Three items were taken from a French adaptation (Galand & Philipot, 2005) of a measure developed by Sheldon, Ryan, Deci and Kasser (2004) ($\alpha = .84$) (e.g. "I am doing my FD because it allows me to develop my abilities") covered intrinsic motivation, while another three items ($\alpha = .55$) (e.g. "I am doing my FD because I don't want to fail") reflected extrinsic motivation.

Task value. Participants reported on the value they assigned to their FD. The scale was adapted from Eccles and colleagues (1993). This scale consisted of three subscales: intrinsic interest (three items, $\alpha = .79$, for example: "I am interested in the topic of the FD"), perceived utility (three items, $\alpha = .63$, for example: "My FD will be useful for getting my degree") and importance (three items, $\alpha = .67$, for example: "It is important for me to finish the FD"). Theoretical arguments and empirical results support the combination of those subscales into an overall score of perceived task value (Eccles, 2006). An exploratory factorial analysis of the three subscales identified a single factor, covering 51% of the variance.

Engagement with the FD

Emotional engagement. Participants reported on the emotions they felt while working on their FD. Five items ($\alpha = .75$) from the PANAS-X (Watson and Clark, 1999) and validated in French (Gaudreau, Sanchez & Blondin, 2006) measured negative emotions (e.g., afraid, irritable, upset) and another five items ($\alpha = .83$) from the same scale assessed positive emotions (e.g., active, alert, interested). Exploratory factor analysis supported the *a priori* classification of these items into two scales.

Cognitive engagement. Participants reported on their use of self-regulation strategies, including supervising themselves while working on the FD, monitoring their progress on the FD and managing content-related information. The self-regulation strategies scale comprised three items ($\alpha = .89$) adapted from Galand, et al. (2010), for example: "I set precise objectives"; "I try to not being distracted when I work on my FD". Participants also reported on their use of deep-processing strategies, including making connections between different pieces of information and exploring the relevance of their learning material to real-life situations. The deep-processing strategies scale comprised three items ($\alpha = .65$) adapted from Galand and Philippot (2002), for example: "I have a critical attitude towards the material I read for my FD"; "When I do my FD, I try to relate to what I'm learning and what I already know from my courses". Exploratory factor analysis supports the *a priori* classification of these items into two scales.

Behavioral engagement. Participants reported on time and effort spent on the FD. Four items ($\alpha = .91$) were adapted from Skinner, Furrer, Marchand, and Kindermann (2008) and assessed participants' behavioral involvement in the completion of the FD (e.g. "I have already put a lot of effort into my FD"; "I have already spent a lot of time working on my FD").

Postponement of FD completion

If students completed the FD before the deadline (in September), it was considered to be completed on time (and coded 0). If not, then the FD was considered postponed (and coded 1).

Data analysis

Of 268 students, 49 (18%) postponed completion of their FD. Quantitative data were analyzed in two stages. First, discriminant function analyses were used to identify the best combination of independent variables for discriminating the FD postponement group and the FD completion group. Discriminant analysis is a multivariate technique for predicting group membership, a categorical variable, from a set of continuous independent variables. It indicates if group differences exist and, more specifically, where they exist among the independent variables. In the first stage, individual characteristics variables were entered into the discriminant function analysis. In the second stage, social support variables were added to the discriminant function analysis, controlling for the effect of individual characteristics variables. In the third stage, motivational variables were added, controlling for the effects of individual characteristic and social support variables. Finally, in the last step, engagement variables were added, controlling for individual characteristics, social support and motivational variables. This order of introduction of the set of factors in the analyses correspond to the model presented in the introduction which postulates that some blocks of variables have a more distal effect on FD postponement whereas others blocks of variables have a more proximal effect on FD postponement (see figure 1).

In the second step, variables proving significant effects in the first step were introduced in a conceptual model and path analysis in AMOS (Version 16) was performed to examine the relationship between the blocks of variables. Because of the partly exploratory nature of the study, the procedure was not used in a strict model-testing sense. In order

to evaluate the adequacy of the conceptual model, a combination of fit indices was examined: the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the chi-square test statistics. For the CFI indices, values greater than .90 are typically considered as being acceptable, and values greater than .95 indicate good fit to the data (Byrne, 2001; Hu & Bentler, 1999). For well-specified models, an RMSEA of .06 or less reflects a good fit (Hu & Bentler, 1999). Then, the significance of the indirect effects was determined by bootstrap methods using 95% confidence intervals (Shrout & Bolger, 2002). Amos calculates confidence intervals for total indirect effects using the unstandardized mean beta weight and the associated standard error from 1000 bootstrap samples (Shrout & Bolger, 2002). The indirect effect is considered significant if the confidence interval does not include zero.

Results

Step 1: Discriminant function analyses

Table 1 shows the range, means and standard deviations of the independent variables. The first discriminant function analysis was carried out in order to determine whether the students who postponed their FD and those who completed it on time differed along the background variables. The predicting variables included were age, past performance, parents' education, positive affects, negative affects, perfectionism and self-criticism. This resulted in a total of seven independent variables. The homogeneity of variance across the groups was evaluated using Box's M. This analysis was not significant ($p = .249$), supporting the assumption of equality of variances. Results indicated a significant discriminant function (Wilk' $\lambda = .886$, $\chi^2 (7) = 31.24$, $p < .001$), explaining 11.4% of the between group variance. Standardized discriminant coefficients and structure coefficients were examined in order to investigate which variables contributed to group separation. **Table 2** shows these values. Using the recommended cut-off of $>.30$ (Tabachnick & Fidell, 2001), four

Variables			
	Range	Mean	SD
<i>Individual characteristics</i>			
Age	-	24.46	5.06
Parents' education	1–5	3.82	1.1
Past performance	1–5	3.01	.81
Perfectionism adaptive.	1–5	3.5	.77
Perfectionism maladapt.	1–5	2.74	.83
Negative emotional temp.	1–5	2.33	.72
Positive emotional temp.	1–5	3.6	.64
<i>Social support</i>			
Perceived training guid.	1–5	3.02	.86
Supervisor support	1–5	3.9	.79
Peer support	1–5	3.65	.86
Relatives' support	1–5	3.43	.92
Role conflict	1–5	2.86	.92
<i>Motivational beliefs</i>			
Self-efficacy	1–5	3.63	.65
Intrinsic motivation	1–5	3.62	.86
Extrinsic motivation	1–5	4.01	.71
Task value	1–5	-.01	1.04
<i>Engagement</i>			
Positive emotions	1–5	2.84	.81
Negative emotions	1–5	2.41	.86
Self-regulation strategies	1–5	3.01	.88
Deep-proc. strategies	1–5	3.54	.65
Behavioral engagement	1–5	3.64	1.04
N = 268			

Table 1: Means and standard deviations for the FD postponement group and the FD completion on time group; t-test between the two groups.

independent predictors contributed significantly to the discriminant function: age, past performance, positive affects and negative affects. These variables were responsible for group differences: students who postponed their FD were older, had performed poorly during the previous university year, and had less positive affects and more negative affects than those who completed their FD on time. This is supported by both the standardized

discriminant function coefficients and the structure coefficients with the exception of negative affects, which had no significant function coefficient. This suggests that the variance shown for negative affects is in part explained by its correlation with the other variables in the same analysis. Classification results revealed that 70.7% of participants who postponed their FD were accurately identified whereas 62.5 % of those who

Variables	Step 1		Step 2		Step 3		Step 4	
	Cor.	DF	Cor.	DF	Cor.	Df	Cor.	Df
<i>Social background</i>								
Age	.67	.69	.50	.39	.48	.37	.35	.31
Parents' education	.01	.18	.01	.12	.01	.12	.01	.07
Past performance	-.47	-.45	-.34	-.30	-.33	-.29	-.24	-.22
Perfectionistic striving	-.11	.14	-.08	.04	-.06	.06	-.05	.10
Self-criticism	.25	.17	.18	.11	.20	.09	.13	.03
Negative affects	.38	.22	.27	-.05	.26	-.08	.19	.05
Positive affects	-.50	-.43	-.37	-.31	-.36	-.25	-.26	-.05
<i>Social support</i>								
Perceived training guid.			-.12	.13	-.11	.18	-.08	.03
Supervisor support			-.19	-.06	-.18	-.06	-.13	-.01
Peer support			.01	.22	-.01	.20	.00	.08
Family support			-.20	-.02	-.19	-.01	-.14	.02
Role conflict			.80	.72	.78	.64	.55	.32
<i>Motivational beliefs</i>								
Self-efficacy					-.56	-.27	-.40	.08
Intrinsic motivation					-.10	-.09	-.07	.16
Extrinsic motivation					.01	-.16	.01	-.08
Task value					-.03	.23	-.02	.06
<i>Engagement</i>								
Positive emotions							-.17	-.04
Negative emotions							.32	.24
Self-regulation strategies							-.37	.21
Deep-proc. strategies							.10	.08
Behavioral engagement							-.77	-.88
Wilk' λ	.89		.81		.80		.67	
Total correct classification	66.6%		80.35%		80.55%		83.7%	

Note: N = 268. As the sample comprised older students, we ran the final discriminant function analyses without these students (Age < 28; N = 241). Results indicated approximately same structure coefficient (e.g. role conflict = .56; age = .38; behavioral engagement = -.74)

Table 2: Discriminant fonction analyses on FD postponement

completed their FD completion on time were accurately identified. Finally, we examined the Group Centroid means as recommended by Tabachnick and Fidell (2001), which are the mean values of the discriminant functions for each group. Group Centroid means were -.169 for the FD completion group and .757 for the FD postponement group; this

large difference provides additional evidence that the two groups can be discriminated.

The second DFA included sources of social support - supervisor support, peer support, family support, perceived training and guidance and role conflict - controlling for the effect of background variables. Box's M was not significant ($p = .255$). Results indicated

a significant discriminant function (Wilk' $\lambda = .809$, $\chi^2 (12) = 54.129$, $p < .001$), explaining 19.1 of the between group variance. The examination of the standardized discriminant coefficients and structure coefficients indicated that age, past performance, positive affects and role conflict significantly contributed to the discriminant function. Negative affects were no longer significant indicating the effect of this variable might be explained by the contribution of role conflict to the discriminant function. These values are shown in Table 2. This discriminant function resulted in the correct classification of 85.1 % of participants from the FD postponement group and 75.6% of those from the FD completion group. Group Centroid means were -.229 for the FD completion group and 1.025 for the FD postponement group.

The third DFA included motivational beliefs - self-efficacy, intrinsic motivation, extrinsic motivation and task value - controlling for background and social support variables. Box's M was not significant ($p = .105$). Results indicated a significant discriminant function (Wilk' $\lambda = .80$, $\chi^2 (16) = 56.483$, $p < .001$), explaining 20% of the between group variance. The examination of the standardized discriminant coefficients and structure coefficients indicated that age, past performance, role conflict and self-efficacy beliefs contributed significantly to the discriminant function. Positive affects contributed partially to the discriminant function, indicating this variable might be explained by the effect of self-efficacy on

the discriminant function. These values are shown in Table 2. This discriminant function resulted in the correct classification of 85.1 % of participants from the FD postponement group and 76% of those from the FD completion group. Group Centroid means were -.235 for the FD completion on time group and 1.054 for the FD postponement group.

The final DFA included the indicators of engagement – deep-processing and self-regulation strategies, positive and negative emotions while working on the FD and behavioral engagement – controlling for background, social support and motivational variables. Box's M was not significant ($p = .07$). Results indicated a significant discriminant function (Wilk' $\lambda = .67$, $\chi^2 (21) = 99.82$, $p < .001$), explaining 33% of the between group variance. The examination of the standardized discriminant coefficients and structure coefficients indicated that behavioral engagement, age and role conflict contributed uniquely and significantly to the discriminant function. Self-regulation strategies, self-efficacy beliefs and negative emotions while working on the FD contributed partially to the discriminant function. Positive affects and past performance were no longer significant. These values are shown in Table 2. This discriminant function resulted in the correct classification of 85.5% of participants from the FD postponement group and 81.9% of those from the FD completion group. Group Centroid means were -.329 for the

Variables	1	2	3	4	5	8
1. Age	1					
2. Past performance	-,11	1				
3. Positive Affect	-,01	,20**	1			
4. Role conflict	,26**	-,08	-,16**	1		
5. Self-efficacy	-,01	,24**	,48**	-,51**	1	
6. BE	-,05	,21**	,37**	-,35**	,52**	1

Note: N= 268 ; * $p < .05$; ** $p < .001$. BE = Behavioral Engagement

Table 3: Intercorrelations between the independent study variables

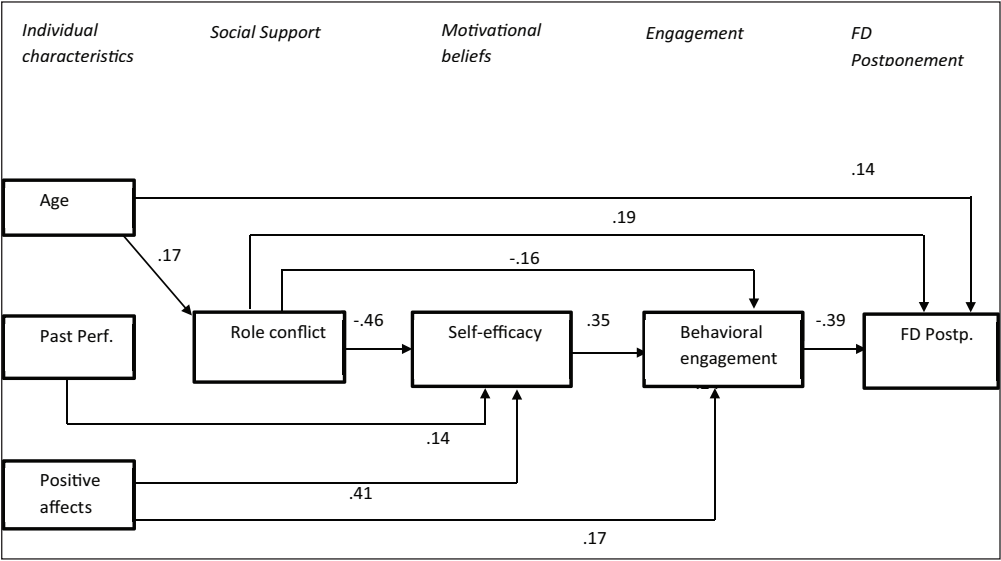


Figure 2: Path analyses. Nonsignificant paths are not shown. All paths are significant at .05

FD completion group and 1.475 for the FD postponement group.

Step 2: Path analyses

In the second step, variables proving significant effect in the first step were introduced in a conceptual model in order to analyze the processes that lead to the FD postponement. In this step, 6 variables appeared to have significant standardized discriminant coefficients: three from the first DFA (age, past performance and positive affect), one from the second DFA (role conflict), one from the third DFA (self-efficacy beliefs) and one from the last DFA (behavioral engagement). The correlations among these independent variables are shown in **Table 3**. The starting point of the path analyses was the conceptual model introduced above. In this line, age, past performance and positive affects (individual characteristics) were considered as control variables; role conflict (social support) was expected to influence self-efficacy (motivational beliefs) which, in turn, was expected to influence behavioral engagement (student engagement). Finally, behavioral engagement was expected to be the most proximal predictors of FD postponement. As mentioned above, the associations have

received empirical support in previous studies. This model is shown in **Figure 2**. In order to test our hypotheses concerning full or partial mediations of motivational and engagement variables, we used a comparison model approach.

With regard to the effect of role conflict, we, first, tested the most parsimonious model, hypothesizing full mediation, with a path from role conflict to self-efficacy, from self-efficacy to behavioral engagement and from behavioral engagement to FD postponement. In addition, we added, based on the intercorrelations, paths from positive affect to self-efficacy beliefs and behavioral engagement, from age to role conflict and FD postponement and from past performance to self-efficacy and behavioral engagement to control for the effect of these individual characteristics. Results indicated that this model provided a satisfactory fit to the data ($\chi^2 (8, N = 268) = 27.17; p < .001$; RMSEA = .09; CFI = .95)², with all paths significant ($p < .05$), with the exception of the one from past performance to behavioral engagement.

Second, a model hypothesizing partial mediation by self-efficacy beliefs was tested by adding to the first model a path from role

conflict to behavioral engagement and a path from role conflict to FD postponement. These paths were significant and their inclusion improved the fit of the model ($\Delta \chi^2 (2) = 18.1; p < .05$) providing a strong fit to the data ($\chi^2 (6, N = 268) = 10.43; p = .11; CFI = .99; RMSEA = .05$). Third, a model hypothesizing partial mediation by behavioral engagement was tested by adding to the second model a path from self-efficacy to FD postponement. This path was not significant and did not improve the model fit ($\Delta \chi^2 (1) = 1.20; p > .10$). The final model, where the effect of role conflict on behavioral engagement and FD postponement is partially mediated by self-efficacy and where the effect of self-efficacy on FD postponement is fully mediated by behavioral engagement is presented, with all the significant coefficients, in figure 2.

The analyses of the indirect effects were based on this final model. Bootstrap confidence intervals revealed that positive affect was indirectly associated with behavioral engagement through self-efficacy ($\beta = .23$, BC 95% CI = .17, .29), and FD postponement through self-efficacy and behavioral engagement ($\beta = -.12$, BC 95% CI = -.17, -.08). Age was indirectly associated with self-efficacy through role conflict ($\beta = -.08$, BC 95% CI = -.13, -.02). Past performance was indirectly associated with behavioral engagement through self-efficacy ($\beta = .06$, BC 95% CI = .02, .10) and FD postponement through self-efficacy and behavioral engagement ($\beta = -.06$, BC 95% CI = -.10, -.02).

Then, role conflict was indirectly associated with behavioral engagement through self-efficacy ($\beta = -.20$, BC 95% CI = -.26, -.15), and FD postponement through self-efficacy beliefs and behavioral engagement ($\beta = .06$, BC 95% CI = .03, .08). Finally, self-efficacy beliefs was indirectly associated with FD postponement through behavioral engagement ($\beta = -.12$, BC 95% CI = -.05, -.19).

Discussion

Final-year university students, compared to first-year university students, have received little attention from higher education

achievement researchers. Some scholars have recently called on researchers to start focusing on master's students' achievements (Anderson et al., 2008; Dupont et al., 2011). In line with this, the aim of our study was to analyze the predictors of timely completion of the most representative task of the final year of university, namely the FD. This issue concerns a substantial percentage of students, with negative consequences for them and the institution in case of postponement. In developing our investigation, we wanted to confirm and extend the results of the study by Dupont and colleagues (2012), in order to examine the impact of other potential predictors of FD postponement and explore some processes involved in FD completion. In the below sections, we first discuss direct effects on FD completion, in order of importance, and then comment on mediation effects. Finally, we will discuss the limitations of the study and future perspectives.

Direct effects on FD postponement

In comparison with the study by Dupont and colleagues (2012), behavioral engagement, role conflict and age were also significant predictors of the FD postponement while peer support was no more significant. The new predictors (perfectionism and affects) that were included in the present study did not prove significant effect. The whole set of predictors explained 33% of the variance of the FD postponement, as in the study by Dupont and colleagues (2012).

Findings from the final DFA indicated behavioral engagement was the strongest predictor of timely FD completion. This is not surprising, since it reflects the efforts students had already made for their FD in May, the period in which the data were gathered. This result is consistent with several studies, in both school and university contexts, which indicate that behavioral engagement is crucial to achievement and in preventing students from dropping out (Skinner et al., 2008; Robbins et al., 2004; Archambault et al., 2009). The second most important contributor to FD postponement

was role conflict. Students having difficulties in combining the fact of writing up their FD with other constraints in their daily life such as family, association or other relationship obligations, are more prone to postpone their FD. This result also replicates the study by Dupont and colleagues (2012) and other organizational studies investigating stress and employee absence among young workers (Hepburn & Barling, 1996; Westman, 2001).

Age was also a predictor of FD postponement, as shown in the study by Dupont and colleague (2012). Older students tend to postpone their FD. In existing literature about post-secondary achievement, mixed findings have been reported with regard to older students. Some studies have shown they adapt better to university and consequently obtain higher GPAs (Clifton, Perry, Roberts, & Peter, 2008), whereas others failed to document such associations (Ting & Robinson, 1998). In the final year of their master's degree, our findings suggest they have problems adapting to the FD completion context.

Examining the non-significant results, our findings suggested that dispositional (affects and perfectionism) and socioeconomic factors are less relevant predictors of FD postponement than more proximal variables such as indicators of engagement. These results are contrary to many studies showing that personality traits such as conscientiousness, perfectionism, procrastination and affects are associated with performance and GPAs among first-year university students (for a review, see: Poropat, 2009) and suggest that the impact of these initial differences tend to disappear once students reach the final year of their studies.

With regard to the social support block of variables, the supervisor's support had no effect on FD postponement, as in the Dupont and colleagues study (2012). This actor might play a more important role at the beginning of the FD process than in the spring, when the data were gathered. At this moment, students may be more able to work independently on their FD. We recommend future studies to adopt a longitudinal design,

so as to shed light on how the supervisor influences the FD process. In addition, contrary to our hypotheses, peer support had no effect on FD postponement, while this factor was significant in the study by Dupont and colleagues (2012). This inconsistent result is difficult to explain because the procedures were similar. The only difference concerns the sample: the present study included students from humanities while the initial one comprised students from physiotherapy and speech therapy. According to Lizzio, Wilson and Simons (2002) the predictors of academic achievement at university might differ as a function of the Faculty. One interpretation of this inconsistent result is that the Faculties that participated to our study have different norms with regards to the relationships between students. However, the present data do not allow supporting this hypothesis which remains speculative.

It is also worth noting that motivational factors, with the expectation of self-efficacy beliefs, did not predict FD postponement. In other words, having a personal interest in the task itself or considering the FD to be useful and important does not influence whether or not students will complete their FD on time. In a recent meta-analysis of academic performance, Richardson and colleagues (2012) found intrinsic motivation had a weak influence on academic performance. However, in our study, the outcome was not final GPA, but rather FD postponement, which is different. Completing a task before a deadline is not the same as performing well in a task. It might explain why our pattern of findings related to motivational factors differs from other studies conducted at the tertiary level.

Finally, negative emotions were unrelated with FD postponement, thus suggesting that emotions are probably not important for the academic success. This counter-intuitive result is anyway consistent with findings presented throughout the literature, showing that such effect is observed irregularly and it is not very well measured (Richardson et al., 2012). In addition, self-regulations strategies were also unrelated to FD postponement.

However, while in the structure coefficients indicated a negative relationship between these variables, the standardized discriminant coefficients indicated a positive relationship, suggesting a uncontrolled statistical effect probably due to multicollinearity consonance with other engagement variables.

Path analyses

An important goal of this study was to explore processes leading to the FD postponement. Our results supported the conceptual model linking social context, motivational beliefs, engagement and FD postponement, lending support to the Connell and Wellborn's theoretical assumptions (Connell & Wellborn, 1990; Skinner & Belmont, 1993; Skinner et al., 2008) and providing initial evidence of processes affecting FD postponement.

Concerning individual characteristics, the effect of age on self-efficacy was partially mediated by role conflict, indicating that older students have less self-efficacy beliefs because they are partially unable to manage completion of the FD and the demands of their daily life. Then, our findings indicated the link between positive affects and timely FD completion was mediated by self-efficacy beliefs and behavioral engagement. This is consistent with previous studies suggesting positive affects are associated with the development of self-efficacy beliefs and efforts (Bandura, 1997; Fielder, 2001). Finally, the link between past performance and FD postponement was mediated by self-efficacy beliefs: students who have achieved well in the previous year develop more efficacy beliefs and consequently more tend to complete their FD on time. This result is also consistent with the social cognitive theory proposed by Bandura (1997).

As regards the social context, we found that role conflict had a strong effect on self-efficacy beliefs, supporting previous research on the role of social context in shaping adaptive motivational beliefs (Connell & Wellborn, 1990; Skinner & Belmont, 1993; Skinner et al., 2008). We also observed strong indirect effects of role conflict through

self-efficacy beliefs on behavioral engagement. Our results thus confirm the premise that a supportive social context (i.e. without tension between spheres of socialization) enhance students' feelings of efficacy and, by this way, facilitates engagement (Patrick, Ryan, & Kaplan, 2007). However, self-efficacy beliefs did not explain totally these relationships because role conflict had also direct effects on these engagement variables and on FD postponement. This result suggests that the partial mediation hypothesis correspond more to the observed data than the full mediation one.

Furthermore, present results revealed that self-efficacy beliefs are important for optimal behavioral engagement, supporting previous research (Connell et al., 1994; Furrer and Skinner, 2003; Skinner et al., 2008). In line with Bandura (1997), students who perceived themselves as competent were more likely to employ effort when faced with the final dissertation. In addition behavioral engagement explained totally the effect of self-efficacy beliefs on FD postponement. This result replicates the Dupont and colleagues (2012)'s study which showed that behavioral engagement mediated the link between self-efficacy beliefs and timely FD completion.

Limitations

Our study has several limitations. The first limitation is that our questionnaire provides only a snapshot of the process of FD completion. As the FD is a task that demands sustained effort over a period of several months, repeated measures could be highly informative. For example, the supervisor and institution's support may have a more important role in postponement at the beginning of the FD process than a few weeks before the deadline.

Another limitation is due to the explorative nature of the study. Indeed, the path analyses were performed *a posteriori* based on the significant effects of the variables on FD postponement, which emerged from the discriminant function analyses. There is still a lack of strong theoretical reasons supporting these analyses, even if they were based

on a conceptual model. There is now sufficient grounding, based on this study and the previous study by Dupont and colleagues (2012), to delve further into this aspect of the subject. Future studies should also investigate other outcomes of interest, such as the development of critical thinking (since it is one of the principal purposes underlying FD completion), and grades, rather than focus exclusively on FD postponement.

Finally, our sample included students from social sciences faculties from one French speaking Belgian university. As Lizzio and colleagues (2002) suggested, the processes that lead to achievement might differ as a function of the faculties in which the data were gathered. Thus, we cannot generalize our results to the whole student population. Future studies in other universities and including students from other faculties are needed in order to confirm or infirm our results.

Nevertheless, this study is an important step in the study of FD completion. It replicates some previous results, points to new predictors of FD postponement and documents the processes connecting some predictors. Future studies are required to gain a better understanding of the variables that influence FD postponement, so as to help students complete their FD.

Notes

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² A Bayesian Estimation analysis, which is preferred over the standard maximum likelihood estimation when using a categorical outcome parameter (FD postponement), resulted in the same explained variance for this parameter and therefore justified the presentation of the standardized regression coefficients

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